Secret
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China Crop Environment Brief: 1977
Third Report, August 1977

Secret
GC CEB 77-004
August 1977

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FOREWORD

This is the third in a series of China Crop Environment Briefs which are being prepared to assist in the refinement of crop production estimates of the Peoples Republic of China. These all-source experimental analyses will be produced monthly through early December 1977. Additional ad hoc briefs will be prepared as warranted by developments. The scope and format of the briefs may vary according to the nature of conditions reported and the perceived utility of the findings.

Within the CIA, cooperative efforts of the Environment and Resource Analysis Center (ERAC) of the Office of Geographic and Cartographic Research and the China Division of the Office of Economic Research facilitated the preparation of this brief. In addition, informal consultations were held with the Foreign Agricultural Service, U.S. Department of Agriculture. The brief was written by a multidisciplinary team housed in ERAC -- composed of personnel from both CIA organizations -- representing the disciplines of geography, economics, agronomy, and meteorology.

METHODOLOGY

25X1D [redacted] 25X1D

All intelligence sources -- [redacted] meteorological data as well as traditional sources such as human intelligence reporting, translations, and the open literature -- are being exploited to produce integrated crop environment analyses. The combination of methodologies used is evolving and will be refined and expanded as experience is accumulated and new data inputs become available. A more complete statement of the methodologies employed will be published later.

12 August 1977

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KEY POINTS

Crop environmental conditions through July 1977 were generally favorable over most of the agricultural area in the Peoples Republic of China, however:

Widespread precipitation, beginning in late June and continuing through July, caused crop losses and damage in parts of North China, but apparently alleviated the drought in Northeast China.

Flooding caused crop damage in areas adjacent to the Yangtze River in Hunan, Kiangsi, Hupeh, and Anhwei Provinces.

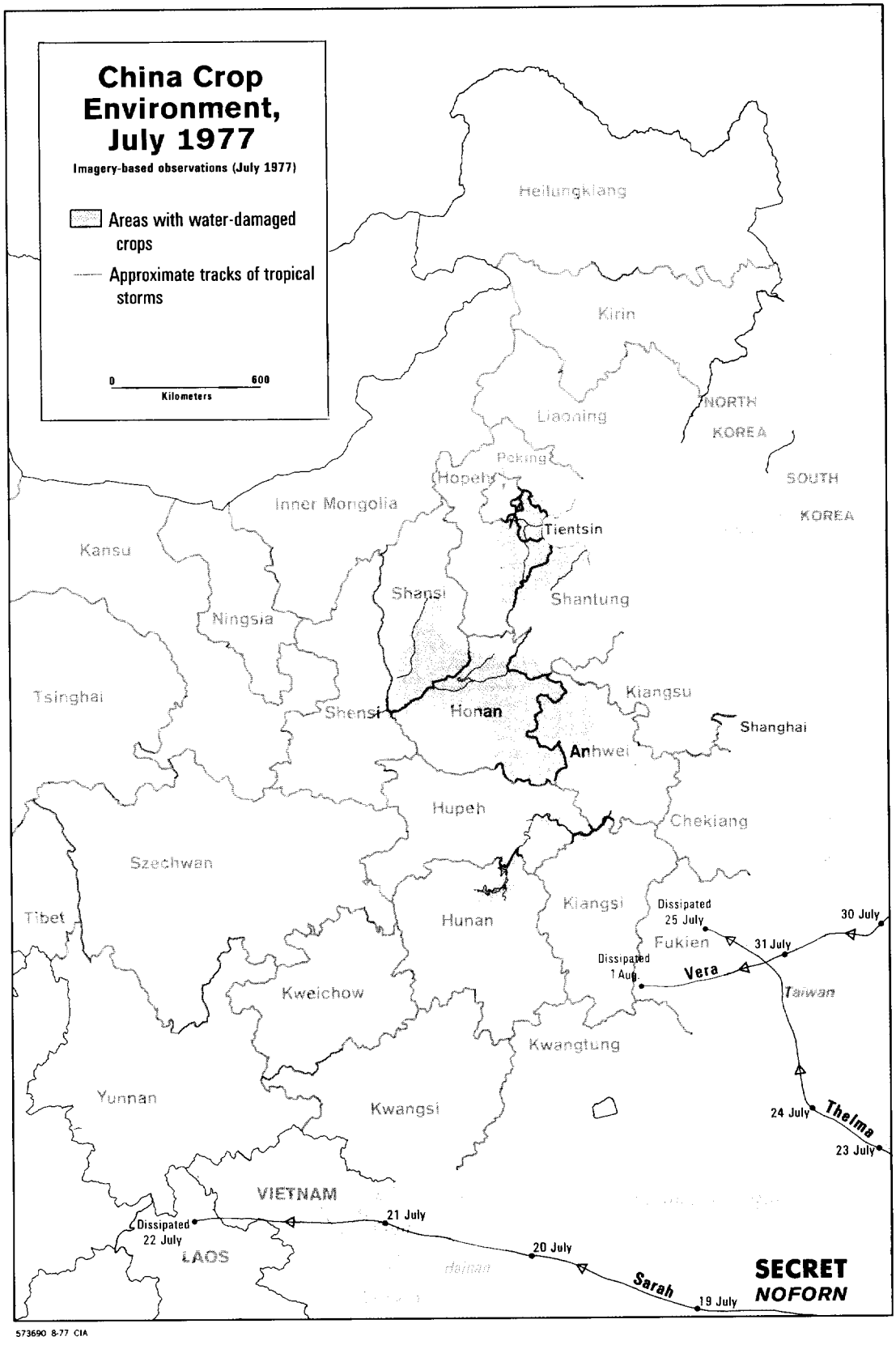
Excellent crop conditions prevailed in north central Szechwan.

Chinese reporting of agricultural conditions throughout the country was spotty in July and little information has been reported by foreign field observers.

NOTE: This paper was produced by the Office of Geographic and Cartographic Research. Comments and questions may be directed to [redacted] *Code 143, extension 2097.*

25X1A

Figure 1



DETAILS

Crop environmental conditions throughout the PRC were generally favorable in July except in those areas hit by excessive rainfall or flooding (see Figure 1). Northeast China has apparently recovered from the serious drought reported earlier in the year: the above normal precipitation of June and July, coupled with late planting, may have saved the spring and summer sown crops, if frost does not occur before maturity is reached (see Appendices).

Unfavorable crop conditions in North China were observed on imagery in portions of Hopeh, Shantung, Shansi, Honan, and northern Anhwei Provinces. Standing water and flooded villages were observed in northern Shantung in early July [redacted] In late July 25X1D
flood conditions were observed near Peking and in other areas of 25X1C
central Hopeh. [redacted]
25X1C [redacted] foreign travelers had seen extensive flooding east of the city and north of Tientsin. Favorable crop conditions were observed on imagery in areas unaffected by water damage.

Crops sown in spring or early summer have been lost or damaged on as much as 25 to 30 percent of the acreage that was observed on imagery of affected areas (see Figure 1). In addition to damaging the growing crop, excessive moisture conditions are likely to increase spoilage in the harvested winter grains that have been spread out to dry. Considerable manpower is required to turn the wheat frequently to prevent excessive heat and sprouting, and in spite of substantial Chinese efforts grain quality will probably be reduced.

In the tri-border area of Shensi, Shansi, and Honan Provinces, the Huang Ho (Yellow River) had spread onto the flood plain. Its tributaries in Shensi and Shansi also showed high water levels. Crop conditions were favorable in areas with adequate drainage.

The high water conditions, flooded fields, and damaged crops in North China are the result of widespread heavy precipitation during the last part of June and all of July (see Figures 3 and 4). East central Shansi, southeastern Hopeh, western Shantung, northwestern Anhwei, and most of Honan received well above average precipitation between 21 June and 31 July 1977: parts of southeastern Hopeh and most of Honan reportedly received more than 400 millimeters, and central Shansi received in excess of 300 millimeters. Many areas in the affected provinces received more than the average total June and July monthly precipitation between 21 June and 10 July 1977.

Most of the rain came from the numerous thunderstorms associated with a quasi-stationary front that oscillated over the area from mid-June through mid-July. Thundershowers also accompanied the weather systems that moved through these provinces during the last half of July. A strong, low pressure area in the upper atmosphere that was located over these provinces throughout late June and July produced the conditions conducive to the development of these widespread heavy thunderstorms. In contrast to the extensive reporting by the Chinese on the recent drought -- found to be exaggerated -- only three reports have been received on North China weather conditions since 18 June and none mention agricultural conditions.

Elsewhere, in northern Hunan and Kiangsi, southern Hupeh, and Anhwei Provinces, high water levels in the middle Yangtze River valley raised lake levels along the course of the river and flooded some of the adjacent cropland. Chinese press reports in late June indicated extensive precipitation throughout Kiangsi and in the middle Yangtze River basin, and in Kiangsi helicopters were required to rescue flood victims. High water in this section of the Yangtze is an annual occurrence, and crop recovery or replanting depends on how long it takes for the water levels to recede. Again, favorable crop conditions existed in areas not affected by flooding.

Excellent crop conditions were observed in north central Szechwan [redacted] The announced figure of some 360,000 hectares for early rice acreage throughout Szechwan, however, seems low. The reported drought early in the 1977 crop season probably was responsible. The dry conditions were alleviated by the rains in July.

25X1D

25X1D

[redacted]

Press reports indicate that northern Fukien experienced heavy rainstorms and floods in late June. [redacted] synoptic charts show that tropical storms struck Fukien Province on 24 July and 1 August, and Hainan Island on 20 July.

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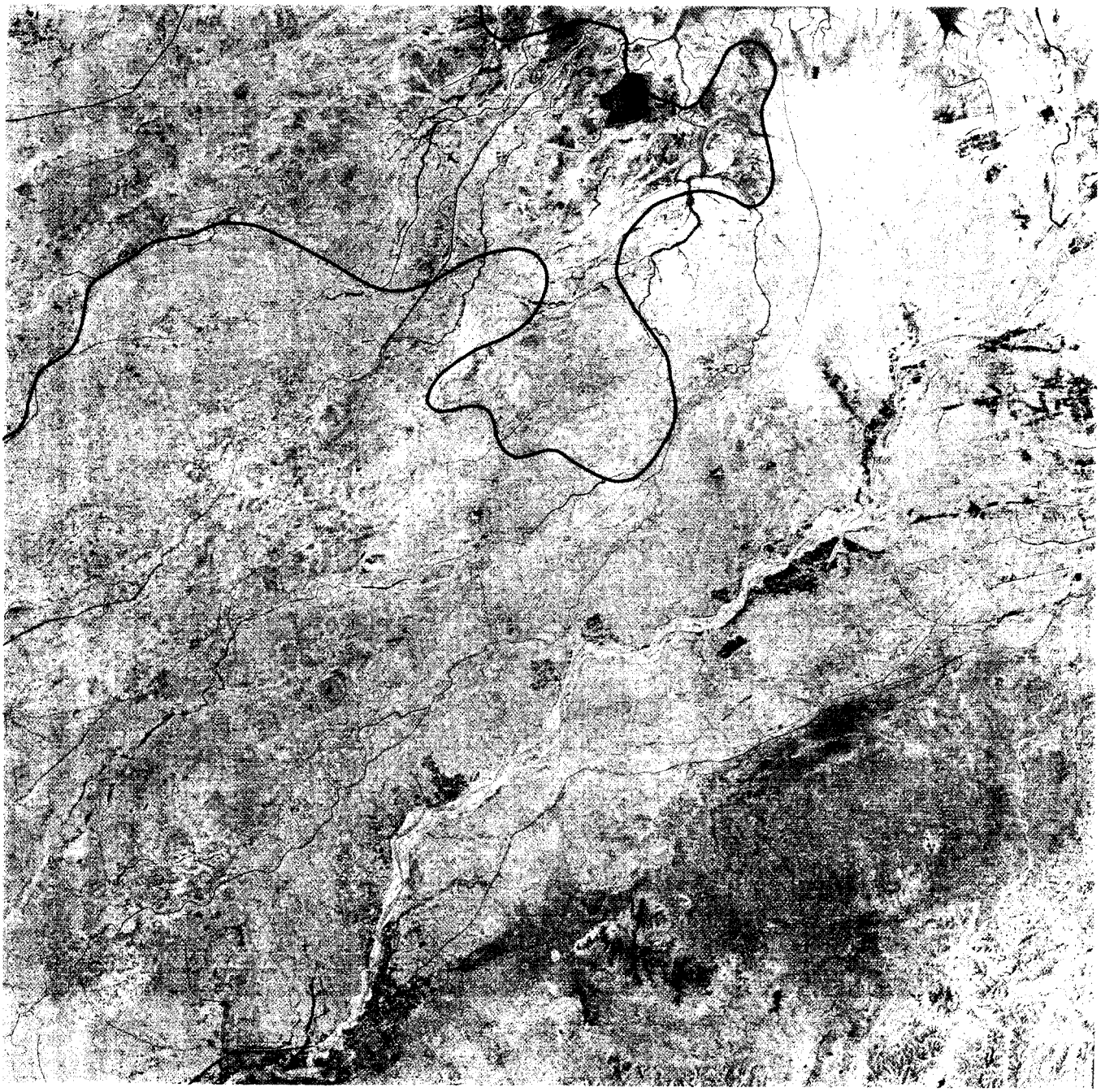
25X1D

LANDSAT II Imagery

Northern Shantung Province

4 July 1977



Heavy rains beginning in late June 1977 resulted in standing water in many villages and fields (outlined area in upper left). Water levels in streams, canals, and ponds are higher than in the same period in 1976. Red color indicates favorable crop conditions in fields not underwater. Some crop damage occurred in those areas that remained underwater for an extended period.

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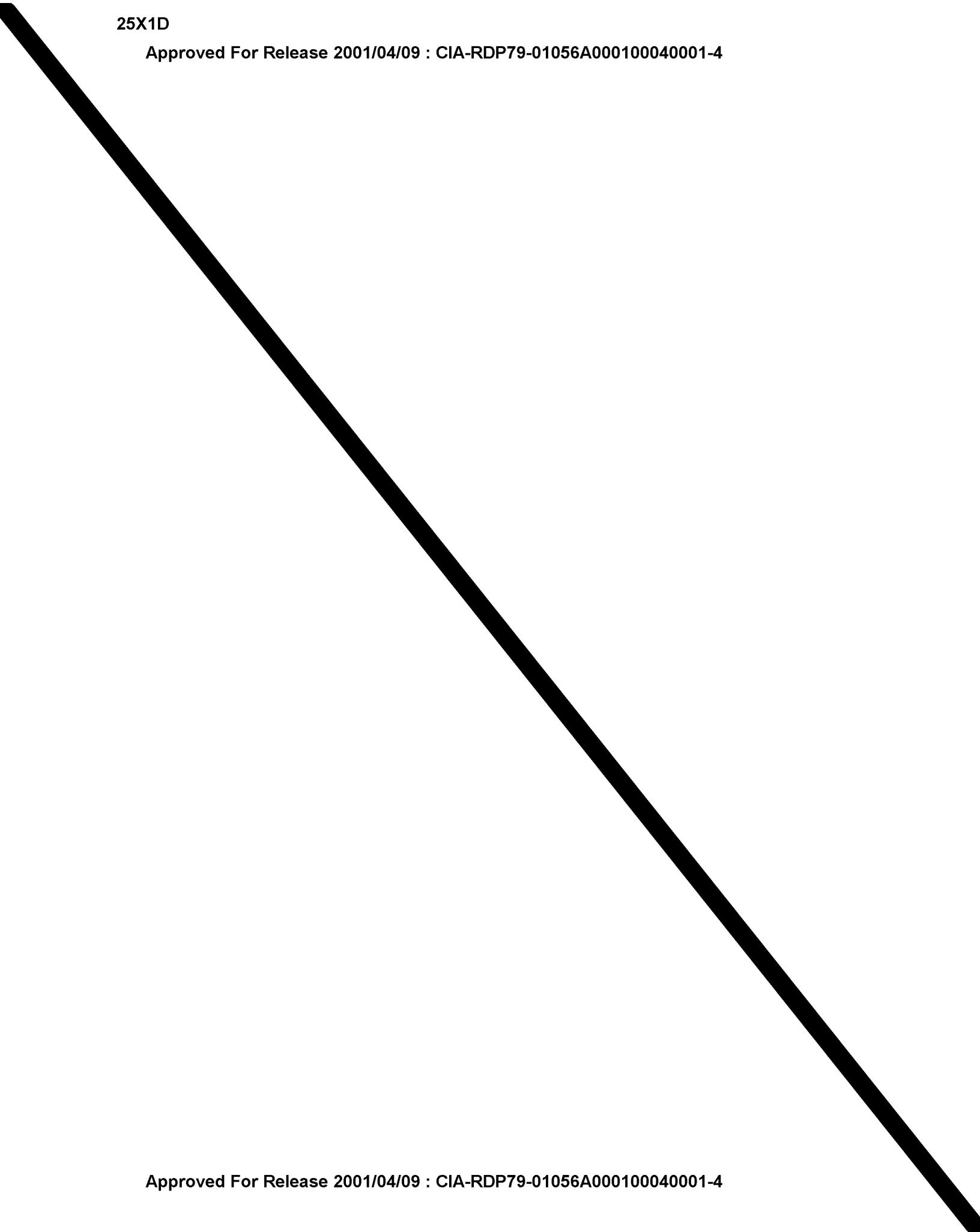
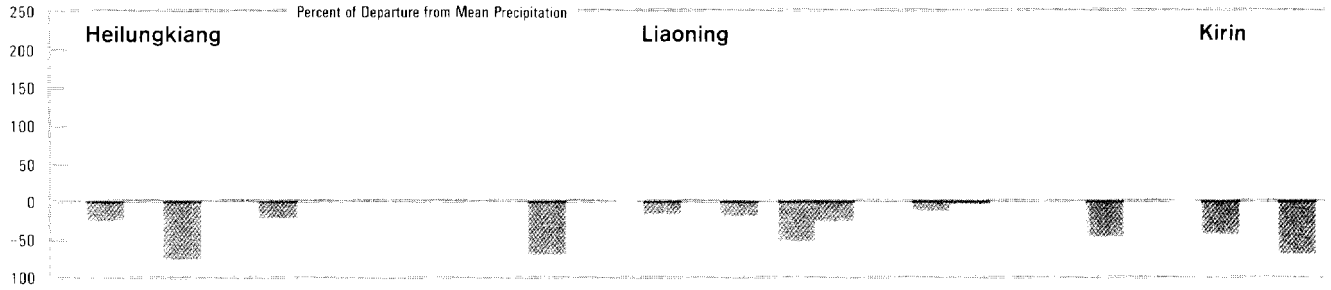
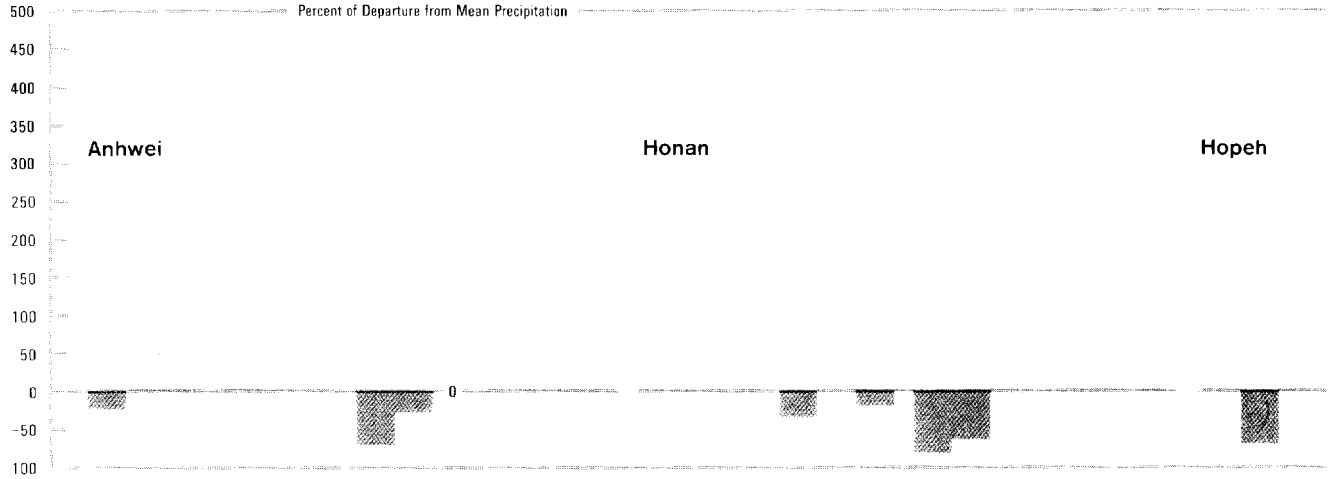


Precipitation Variations from Mean:

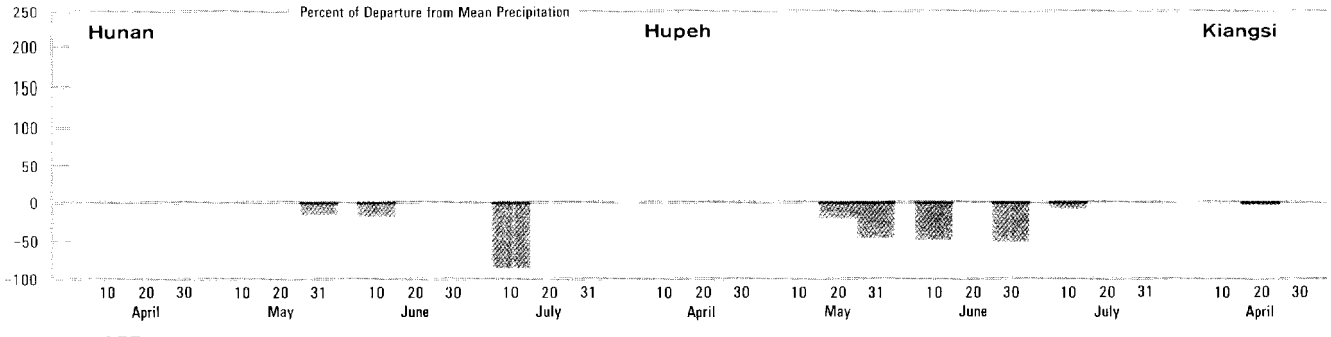
Northeast China Provinces



Provinces of the North China Plain



Selected Major Rice Growing Provinces



1977

Mean values computed from Chinese meteorological data.

Figure 3

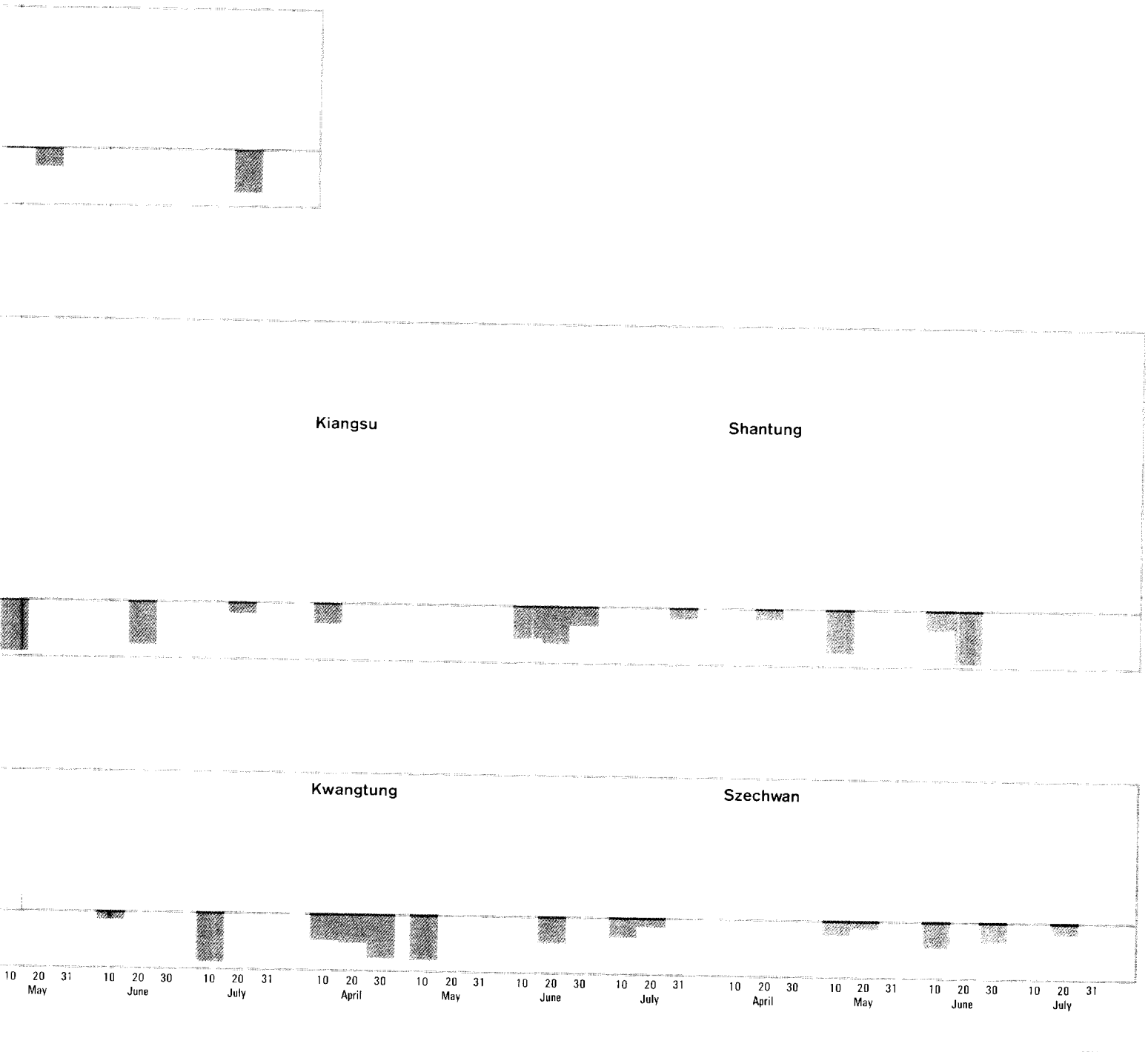


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Figure 4 - A

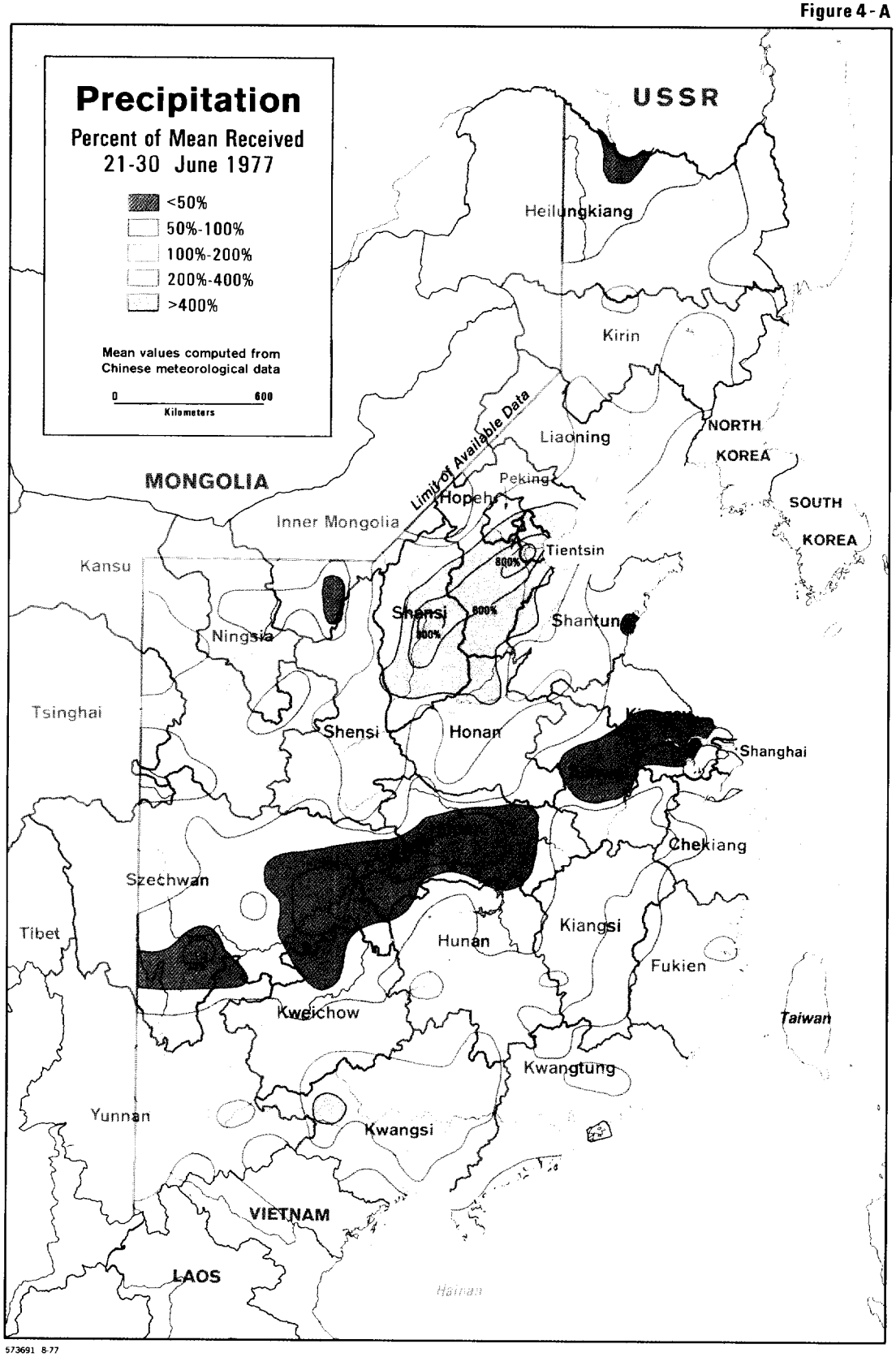

Figure 4 - B

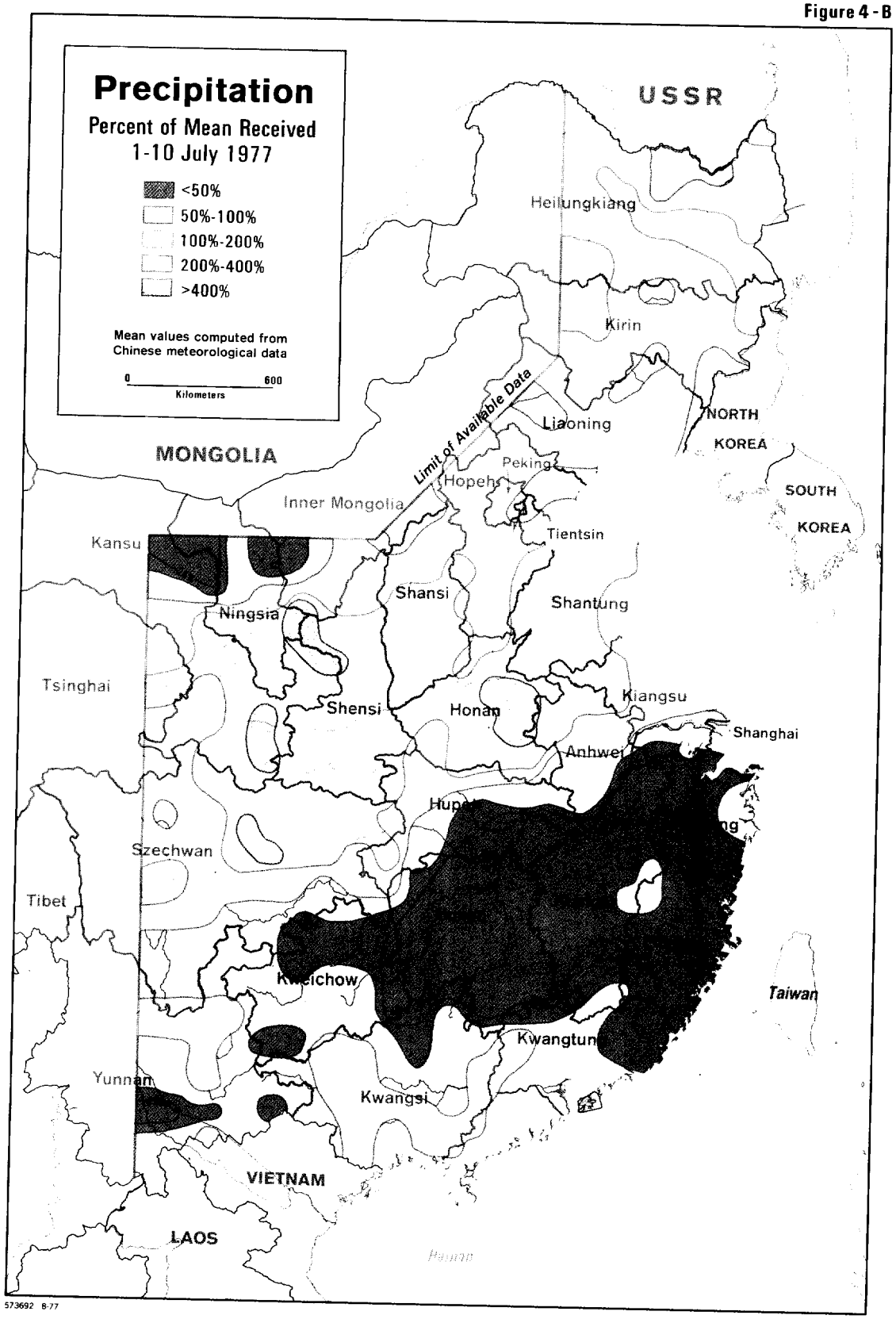

Figure 4 - C

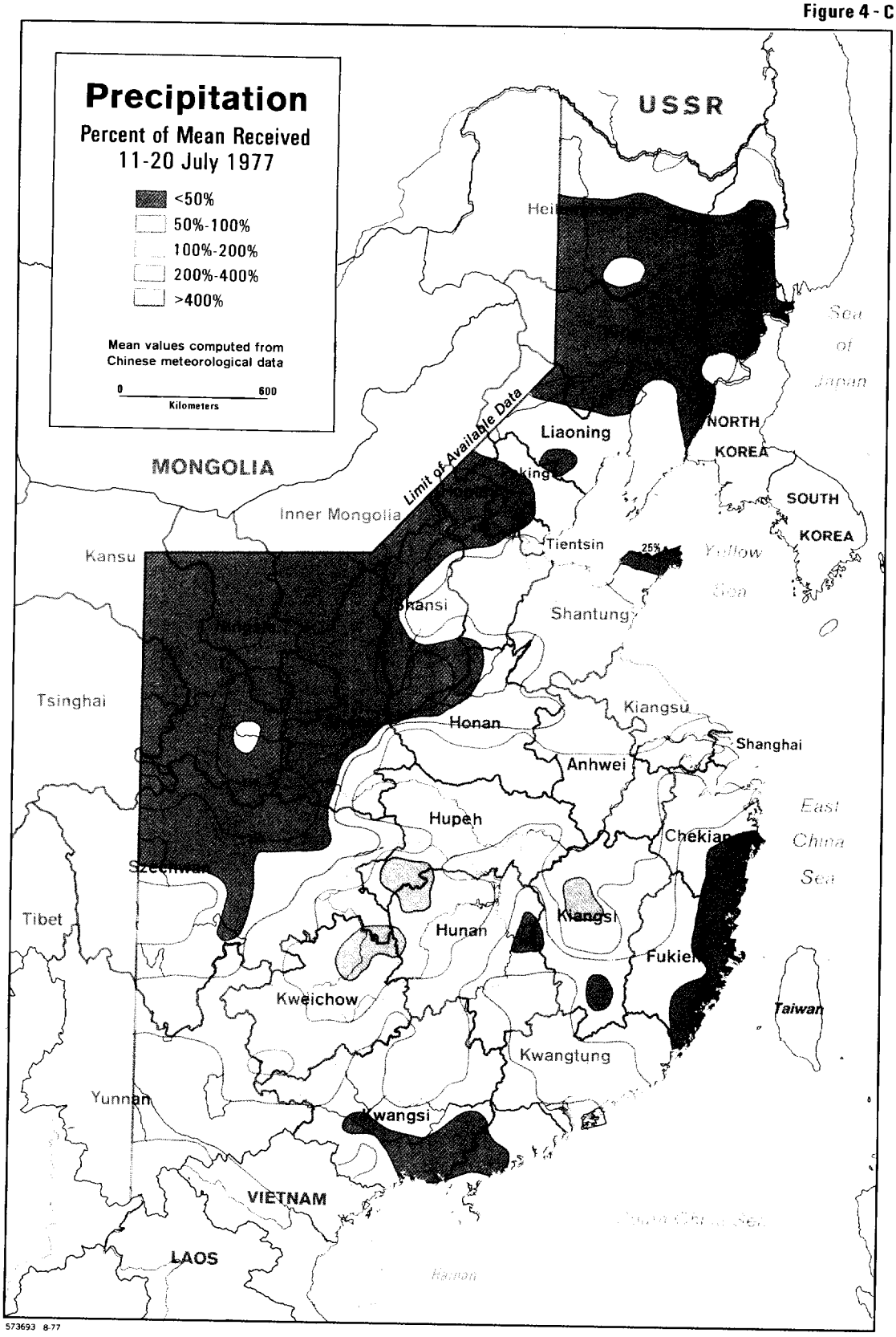

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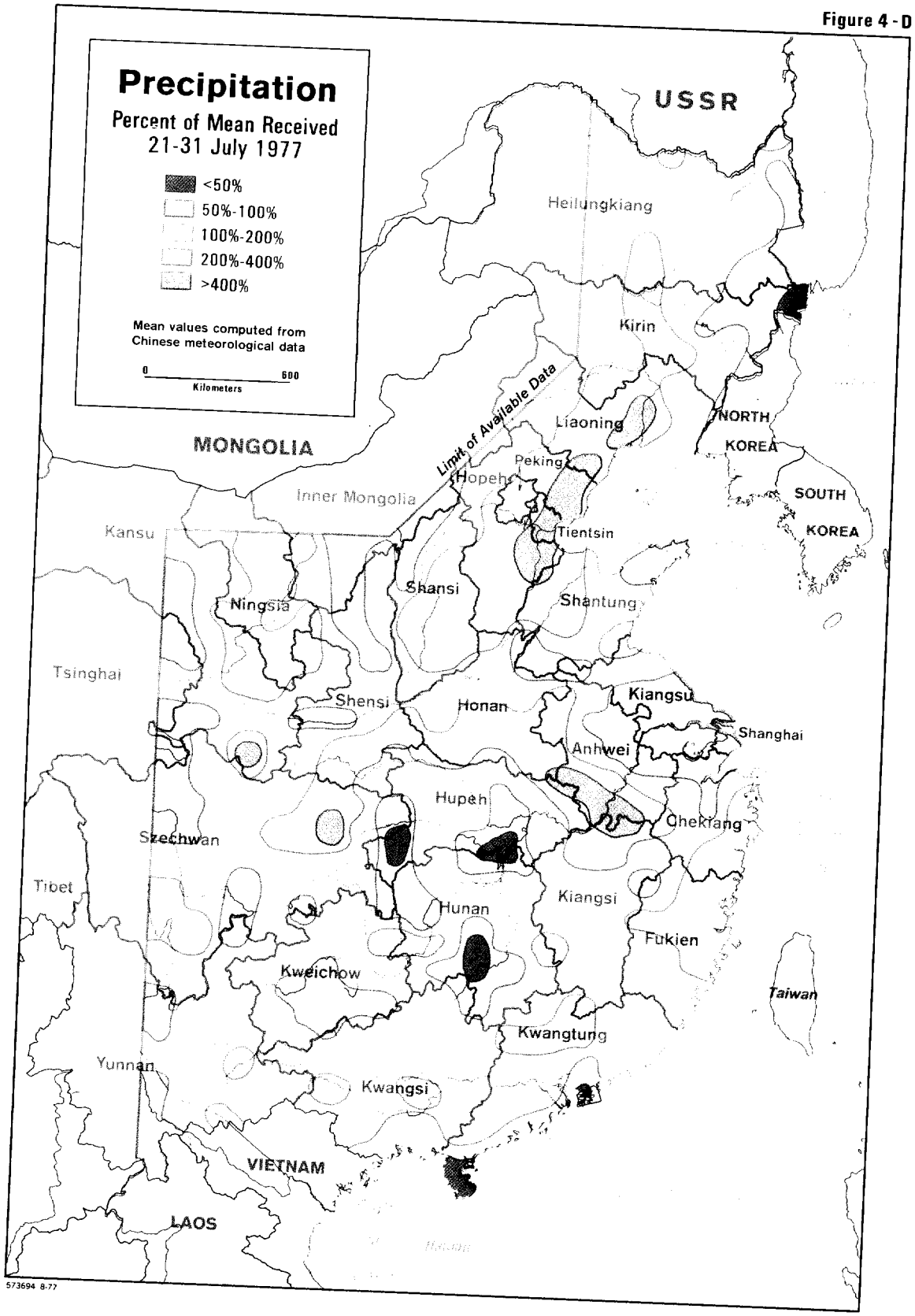
Figure 4 - D



APPENDIX A

Selected Precipitation Data

Province	Percent of Mean Monthly Precipitation 1977				Total Monthly Precipitation 1977 (in millimeters)			
	April	May	June	July	April	May	June	July
Anhwei	153.3	163.4	68.0	180.3	134.4	162.6	108.9	242.5
Chekiang	129.6	159.8	114.0	94.0	167.7	251.8	273.7	125.0
Fukien	76.0	120.7	136.5	90.3	122.8	291.8	371.2	161.7
Heilungkiang	94.3	164.1	132.8	119.9	21.8	78.2	120.9	173.1
Honan	191.0	88.9	84.9	207.2	78.9	54.0	55.6	293.1
Hopeh	157.9	259.4	199.7	180.6	21.0	75.3	116.0	285.2
Hunan	134.0	113.4	158.0	119.3	205.2	227.0	332.6	170.7
Hupeh	177.6	144.0	81.0	179.9	172.4	168.5	121.5	267.5
Kiangsi	127.2	143.4	131.4	165.3	264.4	340.8	358.5	194.3
Kiangsu	149.3	153.8	49.2	133.0	88.8	108.5	62.9	218.5
Kirin	66.3	159.9	141.9	109.4	16.3	66.5	134.1	157.5
Kwangsi	74.9	127.4	150.7	126.9	96.2	283.5	385.6	287.7
Kwangtung	42.2	133.1	112.3	95.7	62.8	322.2	307.2	255.6
Kweichow	137.6	151.0	132.4	119.6	135.4	246.1	263.0	207.7
Liaoning	123.9	103.1	136.6	148.7	32.3	57.0	108.4	261.0
Shansi	183.0	157.6	182.5	157.7	39.8	51.3	86.7	182.3
Shantung	132.1	136.4	74.4	172.3	33.4	51.4	53.0	240.9
Shensi	144.4	94.6	84.0	147.5	41.3	44.7	47.4	141.6
Szechwan	136.1	98.5	84.0	153.9	94.9	107.3	122.0	282.5
Yunnan	110.8	59.8	74.4	113.2	44.3	78.9	159.3	262.6

Values computed from Chinese meteorological data.

APPENDIX B

Selected Temperature Data
(in Celsius)

Province	Departure from Historical Mean Monthly Temperature 1977				Mean Monthly Temperature 1977			
	April	May	June	July	April	May	June	July
Anhwei	0.7	-1.8	-0.8	-1.0	16.0	18.8	24.7	28.1
Chekiang	0.8	-1.0	-1.6	-0.3	17.2	20.3	23.8	28.9
Fukien	0.1	0.6	-1.1	-0.8	19.9	23.9	25.4	28.5
Heilungkiang	-0.8	1.9	-1.4	0.0	4.2	14.6	17.7	22.3
Honan	1.3	-1.0	0.7	-0.3	14.6	17.1	23.4	25.0
Hopeh	0.9	-0.8	-0.7	-0.6	13.0	17.1	21.8	24.2
Hunan	1.4	-1.2	-1.8	-0.5	18.1	20.4	24.3	28.8
Hupeh	1.5	-1.0	-0.3	0.5	16.6	18.9	24.6	27.6
Kiangsi	-0.1	-0.5	-2.0	-1.2	17.7	20.9	24.0	28.5
Kiangsu	1.3	-1.8	-0.3	-0.2	14.4	17.0	22.8	27.0
Kirin	0.3	1.6	-0.6	0.7	6.3	14.7	17.5	22.1
Kwangsi	0.5	-0.2	-1.0	-0.7	22.0	25.6	26.7	27.9
Kwangtung	0.6	1.2	0.2	-0.4	23.1	26.9	27.9	28.7
Kweichow	-1.6	-1.6	-2.2	-1.4	17.1	19.5	21.9	24.7
Liaoning	0.0	-0.6	-1.9	-0.3	9.5	16.5	20.3	24.5
Shansi	0.6	-1.0	-1.0	-1.2	12.6	17.7	20.9	22.8
Shantung	1.6	-1.4	0.6	0.6	14.4	17.7	24.2	27.0
Shensi	0.0	-1.6	-1.6	-1.8	12.2	15.6	20.6	22.8
Szechwan	-1.2	-1.4	-1.3	-1.4	16.5	19.3	23.0	25.7
Yunnan	-0.3	1.2	1.0	0.9	17.7	21.0	22.2	22.1

Values computed from Chinese meteorological data.